PROGRAM SUPPORT AND SERVICES DIVISION

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RESIDENTIAL APPLIANCE

SURVEY 1988

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FORWARD

The Residential Sector accounts for about one third of total electricty usage in Ontario. The Residential Appliance Survey is the most comprehensive source of information for understanding how Ontario households use electricity and other fuels.

With the conclusion of the 1988 survey, we have fourteen years of residential appliance use data. This information assists municipal utilities and Ontario Hydro in planning to meet customers electricity needs through energy management programs. This data also assists in the identification of trends in residential appliance use providing a reliable indicator for projections of energy demand in the Residential Sector.

We would like to acknowledge the cooperation of participating Municipal Utilities.

We welcome comments and suggestions from all users of the Residential Appliance Survey.

J. R. Freeman,

Manager, Market Research Department

INTRODUCTION

This is the fourteenth Residential Appliance Survey conducted by Ontario Hydro. It provides an estimate of the type and number of appliances in Ontario homes and identifies trends in appliance ownership. The objectives of this survey were:

- to provide energy conservation trends for use in Residential Energy Management Programs
- to measure conversion and replacement rates of water and space heating systems.
- to provide data to measure the effects of household characteristics and appliance ownership on electricity consumption.
- to use the data as an input to the Residential End-Use Energy Planning System (REEPS), a residential electricity forecasting model being used by Ontario Hydro.
- to continue the data base begun in 1960, which provides appliance ownership information by individual participating Municipal Utilities and each of Ontario Hydro's Rural Retail Areas.

This survey, conducted by mail during the months of November and December 1988, was produced with the assistance and cooperation of the participating Municipal Utilities across Ontario.

June 1989

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Table 1

Sample Characteristics and Response

Class of Customer	Municipal		Rural Retail			Total
	Single Metered Customer	Bulk Metered Apartments	High Density (R1)	Low Density (R2)	Farm	
Total Households as of November 1988	1,855,298	491,162	276,883	216,967	105,686	2,945,996
Number of Questionnaires Mailed	57,400	21,117	16,300	14,931	11,385	121,133
Questionnaires Mailed as a Percent of Households Surveyed	3.1	4.3	5.9	6.9	10.8	4.1
Number of Useable Questionnaires Returned	23,555	3,465	7,359	6,840	5,162	46,381
Returns as a Percent of Questionnaires Mailed	41.0	16.4	45.1	48.8	45.3	38.3
Returns as a Percent of Surveyed Households	1.3	0.7	2.7	3.2	4.9	1.6
Estimated Sample Error (95% Confidence)	1.9%	5.0%	3.4%	3.5%	4.1%	1.4%

SURVEY METHOD

In the summer of 1988, 108 participating Municipal Utilities provided Ontario Hydro a random sample of single metered residential households from their customer masterfile. A random sample of Rural Retail residential and farm households was also selected for each of the 50 Rural Retail Operating Areas from Ontario Hydro's customer masterfile (see Appendix on pages 23 - 25 for the list of participating Municipal Utilities, Rural Retail Operating Areas and Regional Map).

A sample of bulk-metered apartment dwellers was included to maintain consistency with past survey results. Since there is only one electricity bill per bulk-metered building, questionnaires were addressed to residents of specified suite numbers. The masterfile containing addresses of bulk-metered apartment buildings was provided by the participating Municipal Utilities.

The random sample, selected from billing records, was stratified by size of supply authority and rate class. Of the 121,133 questionnaires mailed, 46,381 useable responses were returned. The response rate of 38% ensures that the results reasonably represents the survey population and therefore a follow-up mailing was not required . Since only computerized Municipal Utilities participated in the 1988 survey (to facilitate data collection), the 1988 survey population represents 89% of all residential electricity consumers in Ontario (see Sample Characteristics and Response, Table 1).

Due to the varying number of customers in each of the 158 survey areas, the sampling fractions were not uniform. The sampling fractions are determined so as to ensure a high and uniform degree of accuracy within the limitations (both sampling and non-sampling) of a mail survey.

No attempt was made to measure non-response bias following our experiences with other surveys when it was found to be negligible.

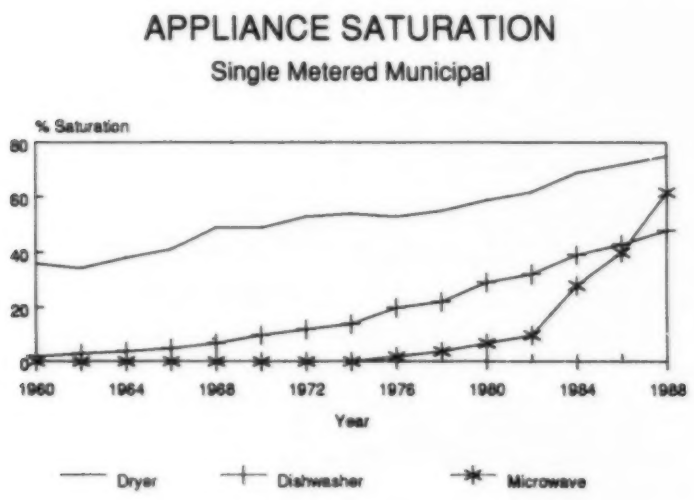
HIGHLIGHTS OF THE 1988 RESIDENTIAL APPLIANCE SURVEY

APPLIANCES

Ownership of microwave ovens and VCRs rose substantially, continuing the trend revealed in the 1986 survey. The saturation level of microwaves increased from 39% to 60% of all households while VCRs increased from about 41% to 57%.

Microwave ovens are very popular with Rural single metered customers at almost 70% saturation versus just over 60% ownership for Municipal single metered customers (see Figures 1 and 2).

Figure 1

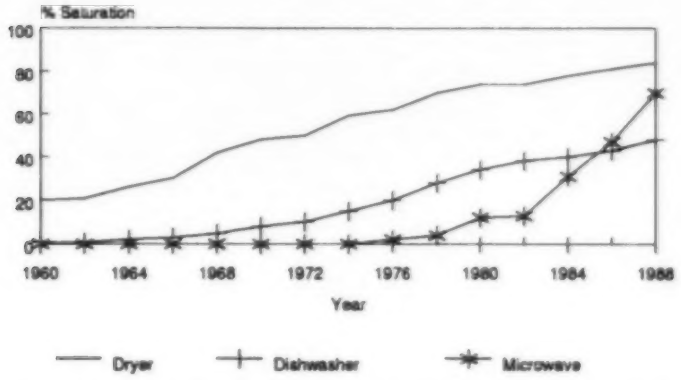


Among other appliances, frost-free refrigerator saturation increased from 76% to 79%, colour TVs from 94% to 98%, personal computers from 13% to about 18%, and dishwashers from 39% to 43% of all households surveyed. Dishwasher ownership by Rural single metered customers are the same as Municipal single metered at 48% (see Figures 1 and 2). Freezer ownership remained at about 60%. Over one-quarter of Farm customers have Sentinel Lights.

Figure 2

APPLIANCE SATURATION

Single Metered Rural



Regional results of appliance saturations can be found on pages 15 to 20. There are no significant differences in appliance ownership by Region, except that gas cooking and gas clothes drying is more prevalent in Western Region.

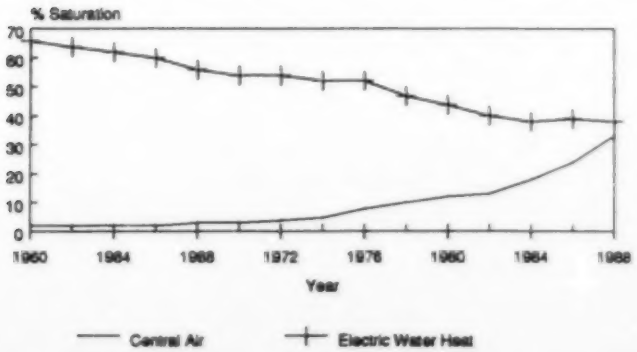
AIR CONDITIONING

Air conditioning in Ontario homes is more commonplace than ever, particularly central air conditioning. While room air conditioners rose slighly from 20% to 22%, central air conditioning soared to 26% of all households from 19% in 1986. One-third of the single metered Municipal customers have installed central air conditioning in contrast to 14% of their Rural counterparts(see Figures 3 and 4). Over 40% of all new homes built since 1986 installed central air conditioning.

Figure 3

APPLIANCE SATURATION

Single Metered Municipal

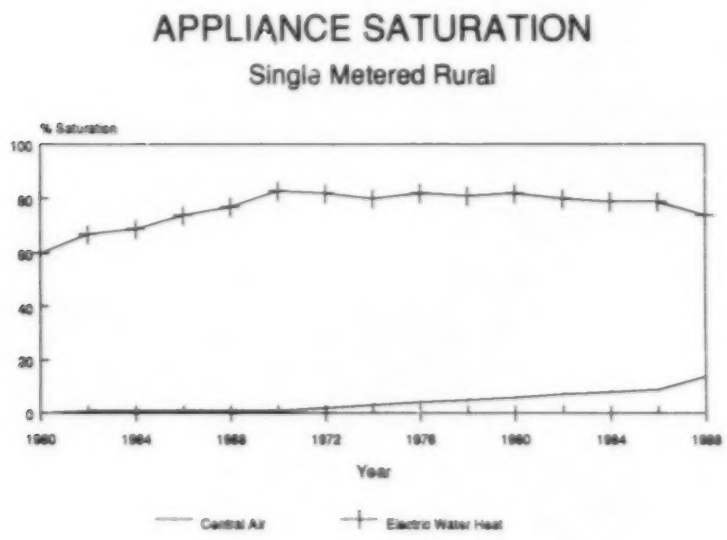


As one would expect, there are marked differences in air conditioning ownership by Region due to weather. The warmest Regions, Central and Western, show central air conditioning at just over 30 %. Central air conditioning ownership in the progressively cooler Regions, Eastern, Georgian Bay, Northwestern and Northeastern is 20%, 9%, 4% and 2% respectively.

WATER HEATING

While electric water heating saturation for all households dropped from 45% to 42%, the single family saturation level dropped marginally to just below 47% between 1986 and 1988 (see page 12 for appliance saturation by housing type). Rural electric water heating dropped from 79% to 74% due to inroads of natural gas in the higher density Rural Retail Areas (see Figure 4).

Figure 4



The survey shows that 4.8% of single family homeowners converted to natural gas water heating from electric water heating between 1986 and 1988.

Regional differences in water heating are dependent on the availablity of natural gas and the amount of unconverted oil heating. Central and Western Regions have the lowest electric water heating saturations at about 34%. Georgian Bay Region is the highest at 71%. Eastern, Northeastern and Northwestern Regions have electric water heating saturation levels of 62%, 56% and 50% respectively.

SPACE HEATING

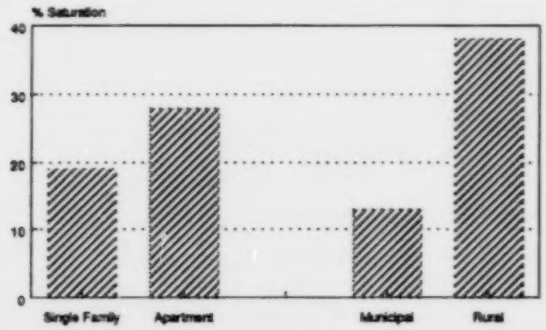
This year's survey incorporated the methodology developed for the 1986 survey. Rather than ask respondents for their main heating fuel, which caused some problems in earlier surveys due to increasing numbers of dual heating systems, (e.g. add- on heat pumps, plenum heaters, air-tight wood stoves) respondents were asked to check off all heating equipment in the home. This allows us to determine what combination of heating equipment is used in the home.

All-electric space heating in single family homes is 18.5% and in apartments it is 27.7% (see Figure 5). Natural gas space heating is 57% in single family and 39% in apartments. Oil space heating is 21% in single family and 5% in apartments. All-electric heating is 38% in the Rural versus 13% for Municipal single metered customers.

Figure 5

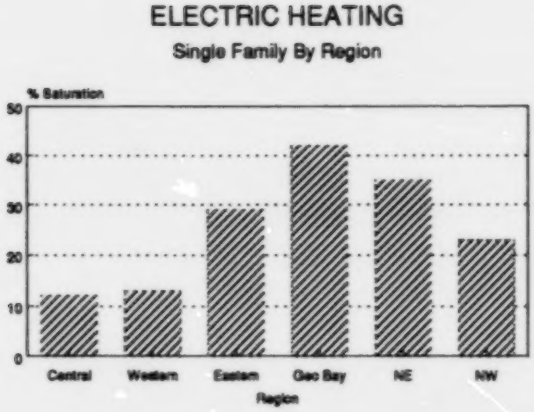
ELECTRIC HEATING

1988



All-electric heating saturation by Region varies from about 12% in Central and Western Regions to 42% in Georgian Bay Region for single family homes (see Figure 6). Electric heating saturation in apartments is higher, varying from 23% in Central Region to 52% in Northwestern Region.

Figure 6



With the inventory of heating equipment by respondent this year, dual or multiple heating fuels can be tracked. Of those in single family dwellings with a natural gas furnace, 3.2% have built-in electric baseboard heaters, 1.0% have a heat pump, and 2.5% have an air-tight wood stove. Similarly, of those households with an oil furnace, 2.1% have built-in electric baseboards, .8% have heat pumps, .2% have plenum heaters, and 3.0% have air-tight wood stoves.

HOUSEHOLD CHARACTERISTICS

Appliance saturations by age of single family dwelling shows central air conditioning in over 43% of the homes built after 1982 (see page 14 for appliance saturations by age of single family dwelling). Electric water heating in pre-1961 homes is just over 44%, while in homes built after 1982, the saturation declines to about 40%. The highest saturation of electric heat can be found in homes of the 1983-1985 vintage at around 35%, while the pre-1961 vintage homes show electric heating at 14%.

Appliance saturations in single family dwellings by kw.h-use ranges follow the trends one would expect, showing high saturations of electric appliances, electric heating and water heating where annual consumption of the home is over 15,000 kw.hs (see page 13 for appliance saturations by consumption ranges). For example, the majority of households with an annual consumption over 15,000 kw.hs have an electric range, a frost-free refrigerator, an electric clothes washer and dryer, and a colour T.V. In single family homes with consumption of over 30,000 kw.hs, electric water heating saturation stands at 87% and all-electric space heating is at 71%.

ENERGY CONSERVATION

Respondents were asked what, if any, energy conservation measures they had taken in the past two years (see Table 2). About 40% of single family respondents took at least one of the measures listed. Attic insulation was the most popular measure at 24%, followed by double\triple glazed windows at 18%. About 7% installed a high efficiency heating unit and just over 5% bought a high efficiency appliance.

When asked what energy efficient measures their house needed, 70% of single family householders felt that their house did not need any energy efficiency upgrading. Just under 15% of those in single family homes felt they needed double or triple glazed windows.

When asked whether they received any information on energy conservation in the last 6 months, just under 40% of those in single family dwellings received material, while only 15% of apartment dwellers received information. Of those in single family dwellings that received energy conservation material, 63% received material from Ontario Hydro or a Municipal utility, 46% from a gas company and 24% from government.

For those receiving information from Hydro or a Municipal utility, three quarters in single family dwellings felt the material was at least somewhat useful and 24% took some action as a result of the information contained in the material received.

Table 2

Energy Conservation Results

Energy Saving Measures Taken in Past Two Years	Single Family %	Municipal %	Rural Retail %
Insulation in Attic	23.7	21.9	24.5
Insulation in Walls	14.6	12.4	18.7
Insulation in Floors	04.8	03.9	06.8
Insulated Doors	11.7	10.7	13.1
Double/Triple Glazing	18.3	17.3	18.4
High Efficiency Heating	07.0	06.8	06.4
High Efficiency Cooling	03.4	03.6	02.3
High Efficiency Appliances	05.3	04.8	06.2
Heat Recovery	00.6	00.4	00.9
Solar Energy System	00.2	00.2	00.4
None of the Above	59.2	61.5	59.1
Feel House Needs:			
Insulation in Attic	07.8	07.1	08.8
Insulation in Walls	11.3	11.3	10.4
Insulation in Floors	05.3	04.8	06.3
Insulated Doors	10.6	10.3	10.7
Double/Triple Glazing	14.3	14.6	14.0
High Efficiency heating	08.4	08.3	08.2
High Efficiency Cooling	05.2	05.4	04.2
High Efficiency Appliances	02.8	03.1	02.8
Heat Recovery	02.8	02.7	03.2
Solar Energy System	01.9	01.7	02.3
None of the Above	70.3	70.6	70.5
Received Energy Conservation Information in Past 6 Months			
Yes	38.5	38.2	36.2
No	50.6	50.6	52.8
Not Stated	10.9	11.2	11.0
Information Came From....			
Ontario Hydro	51.3	44.8	75.1
Municipal Utility	12.4	16.0	02.0
Government	23.5	23.0	23.9
Gas Company	45.8	52.6	18.0
Home Show	13.7	13.4	13.9
Contractor	05.4	05.5	04.4
Other	08.1	08.1	07.9
Not Stated	04.1	04.5	02.8
Information From Hydro or Municipal Utility...			
Extremely Useful	06.5	06.2	07.0
Very Useful	25.6	25.4	25.4
Somewhat Useful	46.1	45.8	45.6
Not Very Useful	08.3	08.8	08.1
Not at all Useful	03.7	04.0	03.7
Not Stated	09.9	09.9	10.3

SECTION II - PROVINCIAL SATURATION STATISTICS

Appliance Saturation By Region

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**1,563,606**	**546,578**	**433,638**	**164,838**	**168,138**	**69,199**	**2,945,997**
Appliances	%	%	%	%	%	%	%
Electric Range	93.5	88.8	97.1	95.6	97.7	96.1	93.6
Gas Range	08.0	13.3	03.1	04.6	02.4	04.6	07.7
Microwave Oven	56.2	66.5	61.8	64.3	67.4	66.2	60.3
Frost-Free Refrigerator	76.7	84.1	78.5	82.6	79.6	81.1	78.9
Freezer (Stand Alone)	52.2	66.4	64.5	73.8	69.6	70.6	59.3
Other Refrigerator	40.3	40.3	41.4	40.8	41.8	36.9	40.5
Dishwasher	41.6	43.8	47.9	46.6	41.0	41.2	43.2
Clothes Washer	73.5	84.9	82.1	89.7	87.6	88.6	79.0
Electric Clothes Dryer	62.3	70.1	75.5	80.6	79.4	79.4	68.1
Gas Clothes Dryer	04.9	10.4	01.0	02.6	01.7	01.9	04.9
Colour Television	97.6	98.2	97.2	97.6	97.9	98.2	97.7
Black & White Television	16.8	21.3	21.3	20.7	20.9	19.8	18.9
VCR	56.6	54.3	57.4	55.1	59.7	60.8	56.5
Personal Computer	18.7	15.3	18.8	14.9	14.8	15.5	17.6
Sentinel Lights	05.3	08.7	10.1	10.8	08.6	05.7	07.1
Electronic Air Cleaner	15.3	15.1	11.5	07.7	05.4	06.7	13.5
Window Air Conditioner	23.5	29.3	18.5	14.5	09.3	07.7	22.1
Central Air Conditioner	31.2	30.4	20.4	09.1	02.4	03.9	25.9
Furnace Humidifier	29.8	32.5	21.9	16.5	16.7	16.8	27.4
Electric Water Heater	33.6	35.2	62.0	70.9	56.3	50.2	41.8
Gas Water Heater	49.4	54.8	23.9	17.6	33.2	39.5	43.7
Switched Water Heater Fuel Electric to Gas	03.7	03.5	04.1	02.5	07.2	07.0	03.9
Electric Space Heating	14.9	16.1	31.3	42.5	35.8	24.2	20.5
Gas Space Heating	59.3	66.1	31.2	24.0	41.2	51.3	53.2
Oil Space Heating	15.3	12.3	29.2	26.4	16.9	17.8	17.6
Wood Furnace	00.7	01.4	04.6	05.3	05.9	09.0	02.1
Heat Pump	03.3	02.7	04.5	02.8	00.3	00.9	03.2
High Efficiency (Gas/Oil)	12.9	14.0	11.6	11.9	18.5	16.8	13.3
Natural Gas Availability	74.2	78.3	55.6	36.2	68.7	63.1	69.5

Appliance Saturation by Rate Class

Rate Class	Rural Retail Residential			Municipal		Total
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	
Households Surveyed November, 1988	**276,883**	**216,967**	**105,686**	**1,855,298**	**491,162**	**2,945,997**
Appliances	%	%	%	%	%	%
Electric Range	94.9	94.2	90.9	92.2	98.5	93.6
Gas Range	05.8	06.0	09.9	09.6	01.7	07.7
Microwave Oven	70.8	69.2	66.3	62.4	40.9	60.3
Frost-Free Refrigerator	85.2	83.0	82.2	84.4	52.2	78.9
Freezer (Stand Alone)	73.9	79.0	82.9	61.3	29.7	59.3
Other Refrigerator	37.8	41.1	43.1	37.4	52.9	40.5
Dishwasher	48.5	46.3	48.2	47.7	20.5	43.2
Clothes Washer	92.6	93.2	93.7	88.8	24.8	79.0
Electric Clothes Dryer	84.3	84.6	82.4	75.0	22.5	68.1
Gas Clothes Dryer	03.5	02.1	03.9	06.5	01.2	04.9
Colour Television	98.5	97.5	96.6	98.2	95.5	97.7
Black & White Television	21.5	24.3	24.8	13.1	12.8	18.9
VCR	61.9	61.1	47.1	59.6	41.7	56.5
Personal Computer	17.8	15.7	15.5	19.8	10.2	17.6
Sentinel Lights	08.2	14.4	26.8	06.1	02.6	07.1
Electronic Air Cleaner	10.3	08.6	07.6	17.3	04.2	13.5
Window Air Conditioner	15.9	14.6	16.3	21.5	32.5	22.1
Central Air Conditioner	16.6	12.6	09.9	32.8	14.6	25.9
Furnace Humidifier	21.0	15.6	19.3	37.3	00.5	27.4
Electric Water Heater	62.8	83.3	81.5	37.8	18.7	41.8
Gas Water Heater	27.5	05.1	07.5	53.2	42.0	43.7
Switched Water Heat Fuel Electric to Gas	04.0	00.7	01.0	05.3	00.6	03.9
Electric Space Heating	37.9	45.7	19.6	13.2	27.3	20.5
Gas Space Heating	35.5	08.2	11.7	66.1	43.7	53.2
Oil Space Heating	22.2	36.3	55.6	16.0	04.2	17.6
Wood Furnace	03.8	11.7	15.8	00.6	00.0	02.1
Heat Pump	03.7	05.4	03.9	03.1	01.5	03.2
High Efficiency (Gas/Oil)	15.7	10.7	11.3	14.7	04.2	13.3
Natural Gas Availability	54.2	15.3	18.0	84.6	56.4	69.5

Appliance Saturation by Housing Type

Housing Type	Single Family*	Apartments**	Total
Households Surveyed November, 1988	**2,325,846**	**620,151**	**2,945,997**
Appliances	%	%	%
Electric Range	92.3	98.3	93.6
Gas Range	09.2	01.9	07.7
Microwave Oven	65.4	41.2	60.3
Frost-Free Refrigerator	86.2	51.5	78.9
Freezer (Stand Alone)	67.4	29.0	59.3
Other Refrigerator	37.2	53.0	40.5
Dishwasher	49.3	20.3	43.2
Clothes Washer	93.5	24.2	79.0
Electric Clothes Dryer	80.4	21.8	68.1
Gas Clothes Dryer	06.0	01.1	04.9
Colour Television	98.3	95.3	97.7
Black & White Television	20.5	12.8	18.9
VCR	60.3	42.4	56.5
Personal Computer	19.4	10.6	17.6
Sentinel Lights	08.3	02.6	07.1
Electronic Air Cleaner	15.9	04.6	13.5
Window Air Conditioner	19.6	31.6	22.1
Central Air Conditioner	29.3	13.4	25.9
Furnace Humidifier	34.5	00.5	27.4
Electric Water Heater	46.5	24.5	41.8
Gas Water Heater	45.5	36.9	43.7
Switched Water Heat Fuel Electric to Gas	04.8	00.5	03.9
Electric Space Heating	18.5	27.7	20.5
Gas Space Heating	57.0	39.3	53.2
Oil Space Heating	20.9	04.9	17.6
Wood Furnace	02.7	00.0	02.1
Heat Pump	03.5	02.7	03.2
High Efficiency (Gas/Oil)	14.6	04.2	13.3
Natural Gas Availability	74.1	52.4	69.5

* INCLUDES SINGLE DETATCHED, ATTACHED, ROW, TOWNHOUSES, 2-4 PLEXES AND MOBILES

** INCLUDES APARTMENTS OF 5 OR MORE UNITS

Appliance Saturation by KW.h Usage Ranges
Single Family Dwellings

Annual Consumption (KW.h)	500-5000	5,001-15,000	15,001-30,000	Over 30,000
Households Surveyed November, 1988	**246,601**	**1,227,260**	**483,552**	**134,206**
Appliances	%	%	%	%
Electric Range	83.5	91.2	97.2	97.6
Gas Range	18.2	10.7	04.0	03.4
Microwave Oven	46.2	63.4	75.4	79.0
Frost-Free Refrigerator	73.6	87.3	89.0	91.1
Freezer (Stand Alone)	44.0	67.8	78.3	79.4
Other Refrigerator	37.2	36.1	41.1	42.1
Dishwasher	23.7	46.2	62.7	74.8
Clothes Washer	83.2	94.5	96.5	98.0
Electric Clothes Dryer	58.9	78.9	90.6	94.9
Gas Clothes Dryer	08.0	07.7	03.0	00.9
Colour Television	95.4	98.5	99.1	99.2
Black & White Television	18.6	20.4	21.9	21.8
VCR	41.5	58.5	68.4	72.1
Personal Computer	10.9	18.1	24.0	29.0
Sentinel Lights	05.4	06.7	10.9	19.1
Electronic Air Cleaner	06.4	15.1	22.3	22.1
Window Air Conditioner	19.2	20.7	19.4	18.4
Central Air Conditioner	12.8	31.4	32.6	31.4
Furnace Humidifier	24.2	40.1	30.8	22.0
Electric Water Heater	32.0	37.2	72.2	86.4
Gas Water Heater	56.6	55.2	20.5	06.2
Switched Water Heater Fuel Electric to Gas	05.1	05.9	03.1	01.0
Electric Space Heating	10.8	06.3	40.2	70.9
Gas Space Heating	64.4	63.4	24.1	06.3
Oil Space Heating	13.2	19.4	19.4	10.9
Wood Furnace	01.8	02.2	04.5	04.7
Heat Pump	01.0	01.4	08.0	13.1
High Efficiency (Gas/Oil)	11.1	14.2	16.6	17.6
Natural Gas Availability	76.4	82.3	58.1	39.4

Appliance Saturation by Age of Single Family Dwellings

Year Built	Before 1961	1961-1970	1971-1982	1983-1985	1986-1988
Households Surveyed November, 1988	**1,620,711**	**445,652**	**586,795**	**136,143**	**156,695**
Appliances	%	%	%	%	%
Electric Range	91.1	96.0	96.7	97.2	97.9
Gas Range	10.1	05.6	04.6	03.8	02.9
Microwave Oven	53.5	62.7	69.7	72.4	77.1
Frost-Free Refrigerator	74.2	76.8	86.5	92.0	93.8
Freezer (Stand Alone)	56.1	63.2	64.3	61.3	60.4
Other Refrigerator	44.3	47.4	33.6	25.1	21.4
Dishwasher	34.1	45.2	56.0	63.7	64.9
Clothes Washer	75.0	77.5	85.0	90.9	91.5
Electric Clothes Dryer	61.4	66.8	78.5	85.7	86.4
Gas Clothes Dryer	05.8	05.9	03.1	01.9	02.5
Colour Television	97.0	98.1	98.7	98.8	98.6
Black & White Television	18.1	19.2	20.8	19.4	18.2
VCR	49.1	59.8	62.7	72.1	70.3
Personal Computer	13.9	18.0	23.9	27.1	22.8
Sentinel Lights	06.7	06.6	07.7	08.0	09.2
Electronic Air Cleaner	10.5	15.9	16.6	20.0	20.1
Window Air Conditioner	26.2	21.4	17.5	12.2	07.9
Central Air Conditioner	18.0	29.4	36.3	44.4	43.4
Furnace Humidifier	24.2	31.0	32.2	32.3	27.7
Electric Water Heater	43.8	36.7	39.4	39.8	41.4
Gas Water Heater	40.2	47.8	47.6	48.7	49.8
Switched Water Heater Fuel Electric to Gas	05.3	03.2	01.5	01.4	02.8
Electric Space Heating	13.6	19.9	29.2	34.5	33.4
Gas Space Heating	47.6	52.3	50.9	54.0	56.8
Oil Space Heating	20.6	13.7	08.4	01.0	00.7
Wood Furnace	02.0	01.1	03.0	03.5	02.2
Heat Pump	02.2	03.1	04.1	06.4	04.8
High Efficiency (Gas/Oil)	13.6	11.1	07.0	20.5	34.5
Natural Gas Availability	70.5	72.5	65.2	67.0	69.3

SECTION III - REGIONAL SATURATION STATISITICS

Appliance Saturation By Region
for Municipal Single Metered Respondents

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**1,089,271**	**357,119**	**229,998**	**58,509**	**76,195**	**45,196**	**1,855,298**
Appliances	%	%	%	%	%	%	%
Electric Range	91.6	88.1	97.9	95.3	97.6	97.7	92.2
Gas Range	10.5	12.7	02.4	05.0	02.6	03.2	09.6
Microwave Oven	60.1	64.8	63.0	63.0	68.5	66.3	62.4
Frost-Free Refrigerator	84.1	87.0	82.1	84.1	84.0	83.1	84.4
Freezer (Stand Alone)	57.8	62.1	64.0	68.5	70.9	69.6	61.3
Other Refrigerator	36.3	39.3	38.8	37.9	41.4	35.8	37.4
Dishwasher	47.6	45.4	54.0	46.1	45.7	43.4	47.7
Clothes Washer	87.9	91.6	88.2	88.9	88.9	89.0	88.8
Electric Clothes Dryer	73.1	74.3	80.9	79.1	81.0	80.0	75.0
Gas Clothes Dryer	06.4	12.2	01.2	04.2	02.2	01.9	06.5
Colour Television	98.1	98.5	97.9	97.8	98.9	98.2	98.2
Black & White Television	17.9	21.9	20.2	19.3	20.5	19.6	19.1
VCR	60.5	54.5	59.5	53.6	61.7	59.6	59.6
Personal Computer	21.4	15.9	21.4	14.7	16.8	15.5	19.8
Sentinel Lights	05.6	05.9	09.1	05.2	04.4	06.8	06.1
Electronic Air Cleaner	19.2	17.3	16.0	09.3	06.2	07.7	17.3
Window Air Conditioner	21.5	28.0	19.5	18.1	08.2	07.6	21.5
Central Air Conditioner	32.1	36.5	26.9	09.1	02.7	04.1	32.8
Furnace Humidifier	40.2	40.7	30.8	22.1	20.5	20.6	37.3
Electric Water Heater	35.7	26.4	57.6	52.3	52.0	34.6	37.8
Gas Water Heater	54.9	66.8	31.7	36.6	39.1	56.2	53.2
Switched Water Heater Fuel Electric to Gas	05.0	04.4	06.4	06.1	08.3	09.8	05.3
Electric Space Heating	10.0	10.0	21.4	32.0	32.8	15.8	13.2
Gas Space Heating	68.2	80.3	42.9	50.0	48.6	71.6	66.1
Oil Space Heating	16.4	07.3	30.2	14.6	14.7	09.2	16.0
Wood Furnace	00.4	00.3	00.9	01.0	01.5	02.8	00.6
Heat Pump	03.5	01.9	05.2	01.5	00.3	00.5	03.1
High Efficiency (Gas/Oil)	14.6	14.8	12.7	14.1	20.1	19.0	14.7
Natural Gas Availability	85.0	91.5	77.0	70.0	79.6	85.0	84.6

Appliance Saturation By Region for Municipal Bulk Metered Respondents

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**374,412**	**55,384**	**51,010**	**4,201**	**5,926**	**230**	**491,163**
Appliances	%	%	%	%	%	%	%
Electric Range	98.5	99.0	97.8	100.0	98.1	100.0	98.5
Gas Range	01.7	01.3	02.2	00.0	02.5	00.0	01.7
Microwave Oven	40.7	47.7	33.5	35.5	52.9	50.0	40.9
Frost-Free Refrigerator	52.3	56.7	47.7	55.4	37.6	50.0	52.2
Freezer (Stand Alone)	28.6	38.1	27.8	38.0	35.7	00.0	29.7
Other Refrigerator	52.3	50.6	58.6	47.6	63.0	100.0	52.9
Dishwasher	21.0	20.5	18.6	08.0	14.9	00.0	20.5
Clothes Washer	26.3	20.4	19.2	21.7	16.8	50.0	24.8
Electric Clothes Dryer	24.0	16.6	18.0	17.6	19.6	50.0	22.5
Gas Clothes Dryer	01.1	03.1	00.0	01.4	01.2	50.0	01.2
Colour Television	95.8	96.4	92.3	98.0	97.6	100.0	95.5
Black & White Television	12.6	12.5	15.2	16.4	06.6	00.0	12.8
VCR	43.9	35.3	33.6	21.0	49.8	50.0	41.7
Personal Computer	10.8	07.1	10.6	04.5	04.7	00.0	10.2
Sentinel Lights	02.4	04.1	03.2	03.5	01.2	00.0	02.6
Electronic Air Cleaner	04.5	04.6	02.0	04.1	01.2	00.0	04.2
Window Air Conditioner	31.2	52.8	23.0	21.5	14.2	00.0	32.5
Central Air Conditioner	16.4	04.9	14.1	00.0	00.6	00.0	14.6
Furnace Humidifier	00.7	00.4	00.0	00.0	00.0	00.0	00.5
Electric Water Heater	15.3	26.0	32.9	27.3	33.4	50.0	18.7
Gas Water Heater	43.6	43.8	29.6	27.5	36.0	00.0	42.0
Switched Water Heater Fuel Electric to Gas	00.4	00.8	01.6	00.0	00.6	00.0	00.6
Electric Space Heating	22.9	38.1	44.0	46.3	50.7	00.0	27.3
Gas Space Heating	45.8	41.4	32.7	33.3	29.8	100.0	43.7
Oil Space Heating	05.2	01.0	01.4	00.0	00.6	00.0	04.2
Wood Furnace	00.0	00.0	00.0	00.0	00.0	00.0	00.0
Heat Pump	01.7	00.9	00.6	00.0	00.0	00.0	01.5
High Efficiency (Gas/Oil)	04.4	03.7	02.2	05./	02.0	50.0	04.2
Natural Gas Availability	56.1	61.8	52.8	42.7	60.9	100.0	56.4

Appliance Saturation By Region for Rural Retail Respondents*

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**82,825**	**91,270**	**130,204**	**83,200**	**83,440**	**22,910**	**493,850**
Appliances	%	%	%	%	%	%	%
Electric Range	96.7	86.9	96.3	95.6	97.7	93.4	94.6
Gas Range	03.8	14.9	03.9	04.5	02.2	07.1	05.9
Microwave Oven	74.0	72.5	70.4	66.6	67.6	66.7	70.1
Frost-Free Refrigerator	88.1	88.5	84.2	83.0	78.8	77.7	84.2
Freezer (Stand Alone)	79.3	77.7	76.5	77.3	70.6	72.9	76.1
Other Refrigerator	38.4	38.5	38.4	41.3	40.4	38.2	39.2
Dishwasher	54.0	49.0	49.7	47.6	38.6	37.7	47.5
Clothes Washer	93.2	93.4	94.4	92.5	91.2	88.2	92.9
Electric Clothes Dryer	88.2	80.3	87.6	84.1	82.1	78.8	84.4
Gas Clothes Dryer	02.0	09.4	00.8	01.8	01.4	01.4	02.9
Colour Television	98.6	98.5	98.3	97.6	97.2	98.2	98.1
Black & White Television	21.1	24.1	24.7	21.0	22.2	20.5	22.7
VCR	65.1	57.4	66.9	59.3	59.1	64.1	61.5
Personal Computer	18.9	17.4	18.4	15.3	13.8	15.9	16.9
Sentinel Lights	10.8	12.7	12.1	11.3	06.7	11.9	10.9
Electronic Air Cleaner	13.4	14.7	08.5	07.4	05.0	05.1	09.6
Window Air Conditioner	16.2	22.8	16.2	12.3	09.8	08.0	15.3
Central Air Conditioner	20.7	29.4	13.9	10.3	02.2	03.5	14.8
Furnace Humidifier	26.7	24.7	16.2	14.3	14.5	09.7	18.6
Electric Water Heater	78.9	57.0	76.5	82.4	60.9	79.6	71.8
Gas Water Heater	11.7	32.9	12.1	07.2	28.7	08.4	17.7
Switched Water Heater Fuel Electric to Gas	01.7	02.4	01.8	00.6	06.9	02.0	02.6
Electric Space Heating	42.1	26.9	45.0	54.3	37.9	40.9	41.3
Gas Space Heating	16.2	45.1	15.3	09.9	36.4	12.8	23.5
Oil Space Heating	36.6	21.4	33.1	28.4	19.0	33.9	28.4
Wood Furnace	04.7	02.5	09.4	06.1	09.3	20.2	07.3
Heat Pump	07.3	06.2	05.2	03.7	00.4	01.7	04.4
High Efficiency (Gas/Oil)	15.4	15.3	10.4	09.7	17.4	08.4	13.5
Natural Gas Availability	27.2	58.3	27.6	18.4	61.2	21.8	37.1

* Includes Ontario Hydro Continuous Occupancy Rate Classes R1 and R2

Appliance Saturation By Region for Farm Respondents

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**17,098**	**42,805**	**23,415**	**18,928**	**2,576**	**863**	**105,686**
Appliances	%	%	%	%	%	%	%
Electric Range	94.7	86.4	92.5	95.0	97.1	87.3	90.9
Gas Range	5.4	15.9	07.2	04.6	01.7	11.2	09.9
Microwave Oven	64.1	69.7	63.5	65.0	63.3	57.8	66.3
Frost-Free Refrigerator	80.7	86.3	77.5	82.3	70.4	74.0	82.2
Freezer (Stand Alone)	83.8	83.1	82.2	82.4	83.0	82.9	82.9
Other Refrigerator	43.3	39.6	46.0	46.3	49.4	42.5	43.1
Dishwasher	49.5	50.2	42.4	51.8	38.4	26.2	48.2
Clothes Washer	94.6	93.6	91.7	95.6	94.2	90.7	93.7
Electric Clothes Dryer	84.3	82.2	79.8	84.4	84.3	73.5	82.4
Gas Clothes Dryer	01.9	07.5	01.2	01.5	01.1	02.6	03.9
Colour Television	96.8	97.4	95.5	96.2	94.2	97.7	96.6
Black & White Television	21.4	25.8	26.2	24.5	20.4	18.7	24.8
VCR	46.9	45.6	48.8	49.0	45.0	38.5	47.1
Personal Computer	17.5	15.6	14.0	16.0	09.6	12.0	15.5
Sentinel Lights	26.1	29.4	23.0	27.4	22.1	17.7	26.8
Electronic Air Cleaner	07.7	10.8	04.4	04.7	02.3	04.7	07.6
Window Air Conditioner	10.2	24.1	11.9	11.1	06.1	08.5	16.3
Central Air Conditioner	09.6	14.8	06.0	05.8	01.3	01.8	09.9
Furnace Humidifier	24.6	22.8	15.2	12.8	13.0	07.6	19.3
Electric Water Heater	85.6	74.0	87.3	87.0	84.9	84.6	81.5
Gas Water Heater	02.4	15.8	01.3	02.3	01.0	00.4	07.5
Switched Water Heater Fuel Electric to Gas	00.7	01.8	00.1	00.6	00.2	00.0	01.0
Electric Space Heating	19.1	15.8	23.8	22.5	25.2	24.2	19.6
Gas Space Heating	03.9	24.5	01.9	03.6	00.8	00.7	11.7
Oil Space Heating	66.1	48.5	59.1	59.7	47.4	43.9	55.6
Wood Furnace	14.9	09.7	23.9	16.3	38.3	38.4	15.8
Heat Pump	05.8	04.6	02.6	03.0	00.4	00.2	03.9
High Efficiency (Gas/Oil)	09.2	11.9	12.1	11.7	04.0	04.4	11.3
Natural Gas Availability	09.9	32.5	07.4	08.0	04.5	05.4	18.0

Appliance Saturation By Region for Single Family Dwellings

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**1,107,193**	**478,156**	**361,886**	**157,185**	**155,076**	**66,350**	**2,325,846**
Appliances	%	%	%	%	%	%	%
Electric Range	91.6	87.5	96.9	95.4	97.6	96.0	92.3
Gas Range	10.5	15.0	03.3	04.8	02.5	04.8	09.2
Microwave Oven	62.6	69.2	67.0	65.5	68.6	66.8	65.4
Frost-Free Refrigerator	87.3	88.1	84.3	83.6	82.2	81.6	86.2
Freezer (Stand Alone)	52.2	70.8	72.2	75.7	72.2	72.3	67.4
Other Refrigerator	40.3	38.9	38.5	40.8	41.0	36.7	37.2
Dishwasher	41.6	47.0	53.3	48.2	43.2	42.4	49.3
Clothes Washer	93.5	93.9	93.9	93.0	93.1	91.7	93.5
Electric Clothes Dryer	78.6	77.5	86.3	83.6	84.5	82.4	80.4
Gas Clothes Dryer	06.5	11.5	01.2	02.6	01.8	01.8	06.0
Colour Television	98.4	98.4	98.2	97.6	98.0	98.2	98.3
Black & White Television	18.6	23.0	22.6	21.0	21.6	19.9	20.5
VCR	61.6	57.0	61.9	56.3	60.5	61.2	60.3
Personal Computer	21.8	16.3	20.4	15.3	15.6	15.8	19.4
Sentinel Lights	06.5	09.5	11.5	11.2	06.0	08.9	08.3
Electronic Air Cleaner	19.6	16.6	13.2	07.7	05.7	06.6	15.9
Window Air Conditioner	20.2	26.5	17.7	14.1	09.1	08.0	19.6
Central Air Conditioner	37.9	33.8	21.7	09.4	02.5	04.0	29.3
Furnace Humidifier	41.9	37.1	26.3	17.3	18.0	17.5	34.5
Electric Water Heater	39.0	36.1	66.4	72.5	57.2	50.3	46.5
Gas Water Heater	53.7	56.8	23.8	17.4	33.5	40.2	45.5
Switched Water Heater Fuel Electric to Gas	05.0	03.9	04.7	02.7	07.6	07.3	04.8
Electric Space Heating	11.6	12.9	29.2	42.3	34.7	23.0	18.5
Gas Space Heating	66.7	69.9	31.6	23.8	42.2	52.3	57.0
Oil Space Heating	19.3	13.8	34.2	27.5	18.1	18.5	20.9
Wood Furnace	01.0	01.6	05.5	05.6	06.3	09.4	02.7
Heat Pump	03.9	03.0	05.2	02.9	00.3	00.9	03.5
High Efficiency (Gas/Oil)	14.8	14.7	12.5	12.1	19.1	16.9	14.6
Natural Gas Availability	83.2	81.0	57.0	36.0	69.8	63.7	74.1

Appliance Saturation By Region for Apartments

Region	Central	Western	Eastern	Georgian Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	**456,413**	**68,423**	**71,752**	**7,652**	**13,061**	**2,849**	**620,151**
Appliances	%	%	%	%	%	%	%
Electric Range	98.2	98.6	98.2	98.9	99.2	100.0	98.3
Gas Range	02.0	01.7	01.8	01.1	01.1	00.0	01.9
Microwave Oven	40.8	47.5	35.4	40.8	53.1	53.8	41.2
Frost-Free Refrigerator	50.9	56.5	49.2	61.2	49.1	68.7	51.5
Freezer (Stand Alone)	28.1	35.5	25.6	34.5	39.1	32.8	29.0
Other Refrigerator	28.1	50.2	56.0	41.8	51.5	41.1	53.0
Dishwasher	20.3	21.4	20.9	12.7	15.0	14.2	20.3
Clothes Washer	24.9	21.8	22.9	22.6	22.1	18.7	24.2
Electric Clothes Dryer	22.7	18.2	20.7	19.9	19.8	10.2	21.8
Gas Clothes Dryer	00.9	02.7	00.1	01.1	01.1	04.0	01.1
Colour Television	95.6	96.4	92.3	97.6	97.8	95.3	95.3
Black & White Television	12.5	23.0	14.6	13.7	12.6	18.3	12.8
VCR	44.5	35.5	35.0	56.3	50.1	51.8	42.4
Personal Computer	11.2	07.9	11.0	06.0	05.2	08.5	10.6
Sentinel Lights	02.4	03.6	02.8	03.3	02.8	00.0	02.6
Electronic Air Cleaner	04.8	04.7	03.1	06.2	02.2	10.4	04.6
Window Air Conditioner	31.4	48.5	22.5	22.3	12.2	00.2	31.6
Central Air Conditioner	15.1	06.6	13.5	01.7	00.3	00.7	13.4
Furnace Humidifier	00.6	00.4	00.0	00.7	00.7	00.3	00.5
Electric Water Heater	20.4	28.9	39.9	37.8	45.5	49.0	24.5
Gas Water Heater	38.8	41.1	24.4	20.7	29.2	21.7	36.9
Switched Water Heater Fuel Electric to Gas	00.4	00.7	01.2	00.1	01.9	00.0	00.5
Electric Space Heating	22.7	38.7	42.0	47.4	49.8	52.0	27.7
Gas Space Heating	41.4	39.4	29.0	28.9	29.3	30.1	39.3
Oil Space Heating	05.6	01.8	04.3	03.7	01.9	00.3	04.9
Wood Furnace	00.0	00.0	00.0	00.0	00.3	00.0	00.0
Heat Pump	01.8	01.2	01.0	00.0	00.0	00.0	01.6
High Efficiency (Gas/Oil)	04.4	04.0	01.8	07.5	04.3	13.3	04.2
Natural Gas Availability	52.2	59.1	48.2	39.1	55.9	50.1	52.4

APPENDIX

Questionnaire

residential appliance survey

Dear Customer

Please help us plan for your future electricity needs by answering the following questions. Upon completion, simply return the form in the enclosed prepaid envelope.

Please do it now while you are thinking about it.

Thank you for your co-operation

Your Hydro

By Authority of the Power Corporation Act of Ontario (Section 58)
If you have any questions call:
Roger Crawford
Ontario Hydro
700 University Avenue (28 A1)
TORONTO M5G 1X6

Si vous désirez recevoir un questionnaire en français, composez le 1-800-668-8508

▼please detach here ▼

95802 6931 R2

If you live in an apartment building, please complete this form for your own unit only.

APPLIANCES

Please "X" the boxes beside the appliances used in your home

	In use	Number used	Age in Years: Now-yst	Age in Years: 2nd newest
frost-free refrigerator	1	2	7	9
other refrigerator	2		23	24
freezer (stand alone)	3		26	
dishwasher	4		29	
electric range	5			
gas range	6			
wood-burning range	7			
microwave oven	8			
washing machine	9			
electric clothes dryer	0		30	
gas clothes dryer	1	2	33	
electronic air cleaner	2			
window air conditioner	3	34	35	37
central air conditioner	4		39	
heat exchanger (heat recovery ventilator)	5		41	
furnace humidifier	6			
black and white television	7	42		
colour television	8	44		
video cassette recorder	9			
personal computer	0			
sentinel lights	1	3		
electric car block heater	2		49	
electric swimming pool heater	3			
electric water pump (for well)	4			

Where requested, write in the number and/or estimated age of the appliances. (If you have more than one of a certain kind, please give the age of the two newest appliances.)

WATER HEATING

What type of fuel is used in your home for water heating?

	Present water heating fuel	Previous water heating fuel
electricity	1	1
natural gas	2	2
oil	3	3
propane	4	4
other	5	5
don't know	6	6

Size and age of your water heater:

Size		Age	
less than 30 gallons	1	less than 5 years	1
30-45 gallons	2	5-10 years	2
46-69 gallons	3	11-15 years	3
70 gallons or more	4	16 years or more	4
don't know	5	don't know	5

HOME HEATING

Please "X" the boxes beside the types of heating equipment used in your home.

natural gas forced air furnace	1
natural gas hot water furnace (radiators)	2
natural gas space heater	3
oil forced air furnace	4
oil hot water furnace (radiators)	5
oil space heater	6
electric forced air furnace	7
electric hot water furnace (radiators)	8
electric built-in heaters (baseboards)	9
electric cooling cable	0
electric heat pump (air to air)	1
electric heat pump (ground source)	2
electric plenum heater	3
plug-in electric heater	4
wood furnace	5
slow burning wood stove (air tight)	6
conventional wood stove	7
fireplace	8
propane heater	9
solar collectors	0
other (WRITE IN)	11

If you changed from oil heating, what year did you change?

before 1981	1
1981-1985	2
1986	3
1987	4
1988	5

If you have a gas or oil furnace, is it a high efficiency condensing furnace? (e.g. PULSE, "-E", MEGASAVE ULTRAMAX, etc.)

yes	1
no	2
don't know	3

Is natural gas available in your neighbourhood?

CHARACTERISTICS OF YOUR HOME

Type of home you live in

- single family detached ☐ 1 [57]
- single family semi-detached ☐ 2
- townhouse or row house ☐ 3
- duplex, triplex, fourplex ☐ 4
- apartment (5 or more units) ☐ 5
- mobile home ☐ 6

Other (WRITE IN) _____ [58]

Are you a ...

- home owner ☐ 1 [59]
- tenant ☐ 2

Is your home a condominium?

- yes ☐ 1 [60]
- no ☐ 2

If you are a tenant or own a condominium, how do you pay for heat and hot water in your home?

	Heat	Hot water
included in rent or maintenance fee	☐ 1 [61]	☐ 1 [62]
pay utility directly	☐ 2	☐ 2

When was your home built?

- before 1961 ☐ 1 [63]
- 1961-1970 ☐ 2
- 1971-1982 ☐ 3
- 1983-1985 ☐ 4
- 1986 ☐ 5
- 1987 ☐ 6
- 1988 ☐ 7

Number of rooms in your home (excluding bathrooms, halls and unfinished rooms)

(___) [64 65]

Number of people living in your household

(___) [66 67]

What is the age of the head of your household?

- under 35 years ☐ 1 [68]
- 35-44 years ☐ 2
- 45-65 years ☐ 3
- over 65 years ☐ 4

ENERGY CONSERVATION

Which of the following energy saving measures:

	Have you taken in past two years?	Do you feel your house needs?
insulation in attic	☐ 1 [69]	☐ 1 [71]
insulation in walls	☐ 2	☐ 2
insulation in floors	☐ 3	☐ 3
insulated door(s)	☐ 4	☐ 4
double/triple glazed windows	☐ 5	☐ 5
high efficiency heating unit	☐ 6	☐ 6
high efficiency cooling unit	☐ 7	☐ 7
high efficiency appliance(s)	☐ 8	☐ 8
heat recovery unit	☐ 9	☐ 9
solar energy system	☐ 0	☐ 0
none	☐ 1 [70]	☐ 1 [72]

In the past 6 months, have you received any information on energy efficiency or conservation?

- yes ☐ 1 [73]
- no ☐ 2

If yes, where did you get the information from?

- Government ☐ 1 [74]
- Ontario Hydro ☐ 2
- Municipal utility ☐ 3
- Home show ☐ 4
- Gas company ☐ 5
- Contractor ☐ 6
- Other ☐ 7

If you got the information from Ontario Hydro or a municipal utility ...

How useful was the information?	Did you act on it?
extremely useful ☐ 1 [75]	yes ☐ 1 [76]
very useful ☐ 2	no ☐ 2
somewhat useful ☐ 3	
not very useful ☐ 4	
not at all useful ☐ 5	

How important is it to use energy more efficiently?

- very important ☐ 1 [77]
- quite important ☐ 2
- somewhat important ☐ 3
- not very important ☐ 4
- not at all important ☐ 5

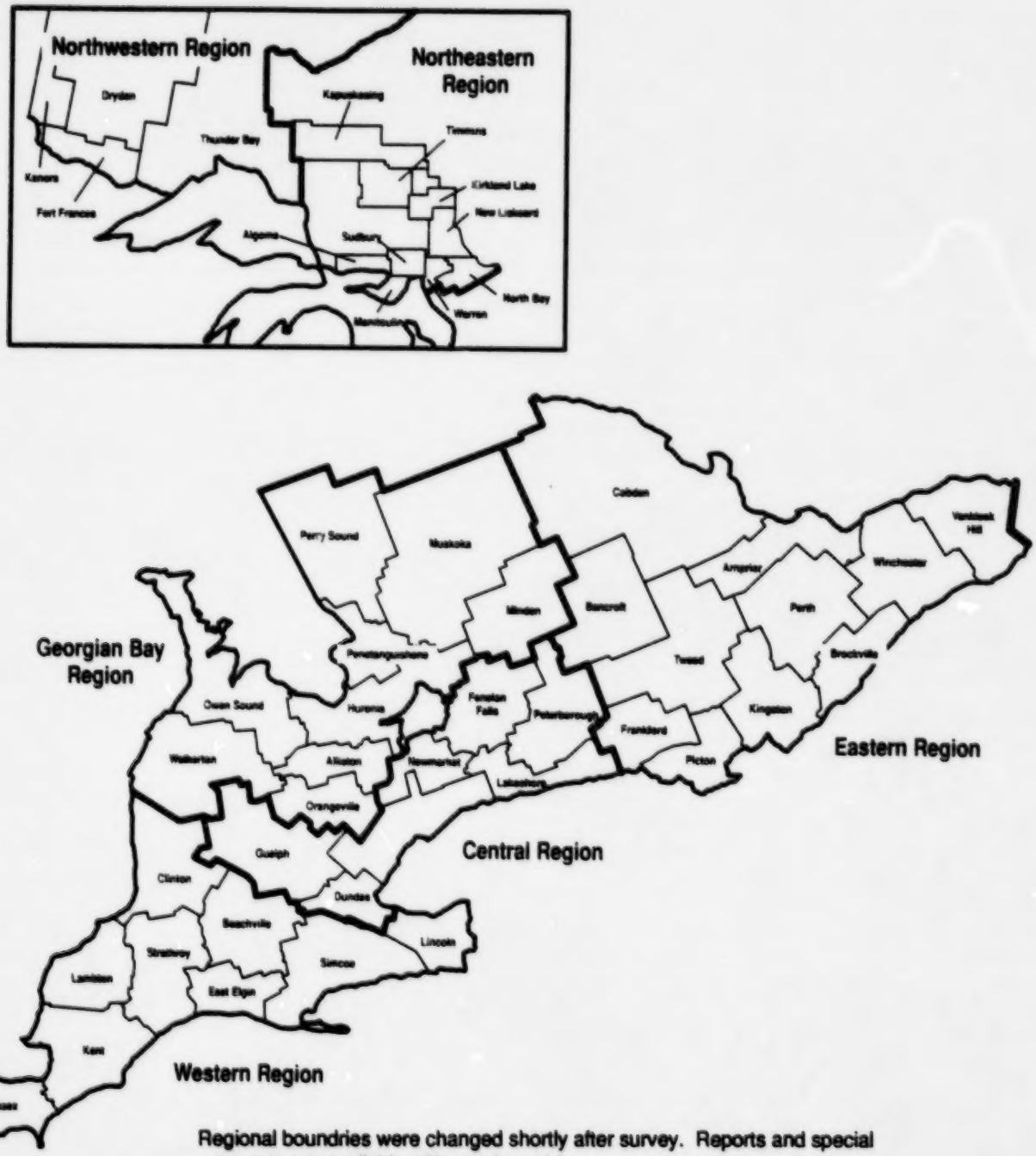
Please indicate the combined 1987 pretax income from all sources for all members of your household. Your reply is CONFIDENTIAL and will help us assess the impact of electricity rates on various income groups.

- under $10,000 ☐ 1 [78]
- $10,000-$19,999 ☐ 2
- $20,000-$29,999 ☐ 3
- $30,000-$39,999 ☐ 4
- $40,000-$59,999 ☐ 5
- $60,000 or over ☐ 6

79-0
80-1

Thank you for your help.

Map of Ontario Hydro Regions



Regional boundries were changed shortly after survey. Reports and special requests are available with new boundries.

LIST OF PARTICIPATING MUNICIPAL UTILITIES

MUNICIPAL UTILITY	REGION	MUNICIPAL UTILITY	REGION	MUNICIPAL UTILITY	REGION
AJAX	C	GLOUCESTER	E	PICKERING	C
ALVINSTON	W	GRAND BEND	W	PICTON	E
ALLISTON	GB	GRAVENHURST	GB	PORT MCNICOLL	GB
ANCASTER	C	GRIMSBY	W	PRESCOTT	E
ARNPRIOR	E	GUELPH	C	RENFREW	E
AURORA	C	HALTON HILLS	C	RICHMOND HILL	C
AYLMER	W	HAMILTON	C	RIDGETOWN	W
BARRIE	GB	HANOVER	GB	RODNEY	W
BELLE RIVER	W	HARROW	W	SARNIA	W
BELLEVILLE	E	INGERSOLL	W	SAULT STE MARIE	NE
BELMONT	W	KANATA	E	SCARBOROUGH	C
BLENHEIM	W	KINGSTON	E	SCHREIBER	NW
BOTHWELL	W	KINGSVILLE	W	SEAFORTH	W
BRACEBRIDGE	GB	LINCOLN	W	SIMCOE	W
BRAMPTON	C	LINDSAY	C	SIOUX LOOKOUT	NW
BRANTFORD	W	LONDON	W	ST CATHARINES	W
BROCK	C	LUCKNOW	GB	ST MARYS	W
BROCKVILLE	E	MARKHAM	C	ST THOMAS	W
BURK'S FALLS	GB	MEAFORD	GB	STONEY CREEK	C
CAMPBELLFORD	E	MILTON	C	STRATFORD	W
CAMBRIDGE N DUMFRIES	C	MISSISSAUGA	C	SUDBURY	NE
CHATHAM	W	MITCHELL	W	TECUMSEH	W
CLINTON	W	N DORCHESTER TWP	W	TERRACE BAY	NW
COLLINGWOOD	GB	NAPANEE	E	THOROLD	W
COMBER	W	NEPEAN	E	THUNDER BAY	NW
CORNWALL	E	NIAGARA FALLS	W	TILBURY	W
COTTAM	W	NIAGARA ON THE LAKE	W	TILLSONBURG	W
DEEP RIVER	E	NIPIGON	NW	TORONTO	C
DRESDEN	W	NORTH BAY	NE	TRENTON	E
DUNDAS	C	NORTH YORK	C	VAUGHAN	C
DUNNVILLE	W	NORWICH	W	WALLACEBURG	W
EAST YORK	C	ORILLIA	GB	WASAGA BEACH	GB
ERIEAU	W	OSHAWA	C	WATERLOO NORTH	C
ERIN	GB	OTTAWA	E	WATFORD	W
ESSEX	W	OWEN SOUND	GB	WELLAND	W
ETOBICOKE	C	PARIS	W	WEST LINCOLN	W
EXETER	W	PARRY SOUND	GB	WEST LORNE	W
FERGUS	C	PELHAM	W	WINDSOR	W
FOREST	W	PEMBROKE	E	WOODSTOCK	W
FORT FRANCES	NW	PENETANGUISHENE	GB	YORK	C
GLENCOE	W	PETERBOROUGH	C	ZORRA	W

LEGEND

C = CENTRAL
W = WESTERN
E = EASTERN
GB = GEORGIAN BAY
NE = NORTHEASTERN
NW = NORTHWESTERN

LIST OF ONTARIO
ONTARIO HYDRO RURAL RETAIL AREAS

RURAL RETAIL AREA	REGION	RURAL RETAIL AREA	REGION
ALGOMA	NE	KIRKLAND LAKE	NE
ALLISTON	GB	LAMBTON	W
ARNPRIOR	E	LINCOLN	W
BANCROFT	E	MANITOULIN	NE
HURONIA	GB	MINDEN	GB
BEACHVILLE	W	NEW LISKEARD	NE
BOWMANVILLE (Lakeshore C)	C	NEWMARKET	C
BRACEBRIDGE	GB	NORTH BAY	NE
BROCKVILLE	E	ORANGEVILLE	GB
CLINTON	W	OWEN SOUND	GB
COBDEN	E	PARRY SOUND	GB
COBOURG (Lakeshore B)	C	PENETANGUISHENE	GB
DRYDEN	NW	PERTH	E
DUNDAS	C	PETERBOROUGH	C
EAST ELGIN	W	PICTON	E
ELLIOT LAKE	NE	SIMCOE	W
ESSEX	W	STRATHROY	W
FENELON FALLS	C	SUDBURY	NE
FORT FRANCIS	NW	THUNDER BAY	NW
FRANKFORD	E	TIMMINS	NE
GUELPH	C	TWEED	E
KAPUSKASING	NE	VANKLEEK HILL	E
KENORA	NW	WALKERTON	GB
KENT	W	WARREN	NE
KINGSTON	E	WINCHESTER	E

LEGEND

C = CENTRAL	GB = GEORGIAN BAY
W = WESTERN	NE = NORTHEASTERN
E = EASTERN	NW = NORTHWESTERN